

Application for Federal Assistance SF-424

* 1. Type of Submission:

- ☐ Preapplication
☐ Application
☒ Changed/Corrected Application

* 2. Type of Application:

- ☐ New
☐ Continuation
☒ Revision

* If Revision, select appropriate letter(s):

A: Increase Award

* Other (Specify):

* 3. Date Received:

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:

7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name:

California Air Resources Board

* b. Employer/Taxpayer Identification Number (EIN/TIN):

68-0288069

* c. Organizational DUNS:

1959302760000

d. Address:

* Street1:

1001 I Street

Street2:

P.O. Box 1436

* City:

Sacramento

County/Parish:

* State:

CA: California

Province:

* Country:

USA: UNITED STATES

* Zip / Postal Code:

95812-1436

e. Organizational Unit:

Department Name:

California Air Resources Board

Division Name:

Administrative Service Div.

f. Name and contact information of person to be contacted on matters involving this application:

Prefix:

Ms.

* First Name:

Yogeeta

Middle Name:

* Last Name:

Sharma

Suffix:

Title:

Accounting Administrator II

Organizational Affiliation:

* Telephone Number:

916-322-8215

Fax Number:

916-322-9612

* Email:

yogeeta.sharma@arb.ca.gov

Application for Federal Assistance SF-424

*** 9. Type of Applicant 1: Select Applicant Type:**

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

*** 10. Name of Federal Agency:**

Environmental Protection Agency

11. Catalog of Federal Domestic Assistance Number:

66.001

CFDA Title:

Air Pollution Control Program Support

*** 12. Funding Opportunity Number:**

EPA-CEP-01

* Title:

EPA Mandatory Grant Programs

13. Competition Identification Number:

Title:

14. Areas Affected by Project (Cities, Counties, States, etc.):

Add Attachment

Delete Attachment

View Attachment

*** 15. Descriptive Title of Applicant's Project:**

Program for the control of air pollution emissions as mandated by state and federal law, review of local and regional air pollution control efforts and other functions appropriate to achieve air quality

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

Application for Federal Assistance SF-424**16. Congressional Districts Of:*** a. Applicant * b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

17. Proposed Project:* a. Start Date: * b. End Date: **18. Estimated Funding (\$):**

* a. Federal	<input type="text" value="7,066,362.00"/>
* b. Applicant	<input type="text" value="20,515,500.00"/>
* c. State	<input type="text"/>
* d. Local	<input type="text"/>
* e. Other	<input type="text"/>
* f. Program Income	<input type="text"/>
* g. TOTAL	<input type="text" value="27,581,862.00"/>

*** 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

- ☐ a. This application was made available to the State under the Executive Order 12372 Process for review on .
- ☒ b. Program is subject to E.O. 12372 but has not been selected by the State for review.
- ☐ c. Program is not covered by E.O. 12372.

*** 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**☐ Yes ☒ No

If "Yes", provide explanation and attach

21. *By signing this application, I certify (1) to the statements contained in the list of certifications and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances** and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

☒ ** I AGREE

** The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

Authorized Representative:

Prefix: * First Name:

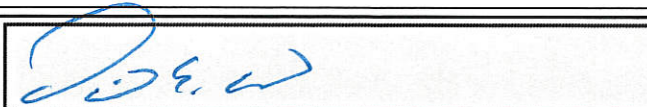
Middle Name:

* Last Name:

Suffix:

* Title: * Telephone Number: Fax Number: * Email:

* Signature of Authorized Representative:

* Date Signed:

BUDGET INFORMATION - Non-Construction Programs

OMB Number: 4040-0006
Expiration Date: 01/31/2019

SECTION A - BUDGET SUMMARY

Grant Program Function or Activity (a)	Catalog of Federal Domestic Assistance Number (b)	Estimated Unobligated Funds		New or Revised Budget		
		Federal (c)	Non-Federal (d)	Federal (e)	Non-Federal (f)	Total (g)
1. Section 105- Base		\$	\$	7,066,362.00	20,515,500.00	27,581,862.00
2. PAMS						
3. PM2.5 PHASE II, NEW Camera, Salton Sea, Real-Time speciation, Nonroad Renewable Diesel Engine Testing,						
4. Imperial County Real-Time Website, Investigate the Impacts of Residential Wood Burning on Wintertime PM2.5 Poll. in SJV						
5. Totals		\$	\$	7,066,362.00	20,515,500.00	27,581,862.00

SECTION B - BUDGET CATEGORIES

6. Object Class Categories	GRANT PROGRAM, FUNCTION OR ACTIVITY				Total (5)
	(1)	(2)	(3)	(4)	
	Section 105- Base	PAMS	PM2.5 PHASE II, NEW Camera, Salton Sea, Real-Time speciation, Nonroad Renewable Diesel Engine Testing,	Imperial County Real-Time Website, Investigate the Impacts of Residential Wood Burning on Wintertime PM2.5 Poll. in SJV	
a. Personnel	\$ 15,609,468.00	\$	\$	\$	\$ 15,609,468.00
b. Fringe Benefits	8,301,115.08				8,301,115.08
c. Travel					
d. Equipment					
e. Supplies		4,218.00			4,218.00
f. Contractual					
g. Construction					
h. Other			730,000.00	175,000.00	905,000.00
i. Total Direct Charges (sum of 6a-6h)	23,910,583.08	4,218.00	730,000.00	175,000.00	\$ 24,819,801.08
j. Indirect Charges	2,762,060.92				\$ 2,762,060.92
k. TOTALS (sum of 6i and 6j)	\$ 26,672,644.00	\$ 4,218.00	\$ 730,000.00	\$ 175,000.00	\$ 27,581,862.00
7. Program Income	\$	\$	\$	\$	\$

Authorized for Local Reproduction

Standard Form 424A (Rev. 7-97)
Prescribed by OMB (Circular A -102) Page 1A

SECTION C - NON-FEDERAL RESOURCES					
(a) Grant Program	(b) Applicant	(c) State	(d) Other Sources	(e) TOTALS	
8. Section 105- Base	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	
9. PAMS	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	
10. PM2.5 PHASE II, NEW Camera, Salton Sea, Real-Time speciation, Nonroad Renewable Diesel Engine Testing,	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	
11. Imperial County Real-Time Website, Investigate the Impacts of Residential Wood Burning on Wintertime PM2.5 Poll. in SJV	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	
12. TOTAL (sum of lines 8-11)	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	
SECTION D - FORECASTED CASH NEEDS					
	Total for 1st Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter
13. Federal	\$ <input style="width:100px;" type="text" value="7,066,362.00"/>	\$ <input style="width:100px;" type="text" value="1,766,590.50"/>	\$ <input style="width:100px;" type="text" value="1,766,590.50"/>	\$ <input style="width:100px;" type="text" value="1,766,590.50"/>	\$ <input style="width:100px;" type="text" value="1,766,590.50"/>
14. Non-Federal	\$ <input style="width:100px;" type="text" value="20,515,500.00"/>	<input style="width:100px;" type="text" value="5,128,875.00"/>	<input style="width:100px;" type="text" value="5,128,875.00"/>	<input style="width:100px;" type="text" value="5,128,875.00"/>	<input style="width:100px;" type="text" value="5,128,875.00"/>
15. TOTAL (sum of lines 13 and 14)	\$ <input style="width:100px;" type="text" value="27,581,862.00"/>	\$ <input style="width:100px;" type="text" value="6,895,465.50"/>	\$ <input style="width:100px;" type="text" value="6,895,465.50"/>	\$ <input style="width:100px;" type="text" value="6,895,465.50"/>	\$ <input style="width:100px;" type="text" value="6,895,465.50"/>
SECTION E - BUDGET ESTIMATES OF FEDERAL FUNDS NEEDED FOR BALANCE OF THE PROJECT					
(a) Grant Program	FUTURE FUNDING PERIODS (YEARS)				
	(b) First	(c) Second	(d) Third	(e) Fourth	
16. Section 105- Base	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	
17. PAMS	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	
18. PM2.5 PHASE II, NEW Camera, Salton Sea, Real-Time speciation, Nonroad Renewable Diesel Engine Testing,	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	
19. Imperial County Real-Time Website, Investigate the Impacts of Residential Wood Burning on Wintertime PM2.5 Poll. in SJV	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	<input style="width:100px;" type="text"/>	
20. TOTAL (sum of lines 16 - 19)	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	\$ <input style="width:100px;" type="text"/>	
SECTION F - OTHER BUDGET INFORMATION					
21. Direct Charges: <input style="width:200px;" type="text"/>		22. Indirect Charges: <input style="width:200px;" type="text"/>			
23. Remarks: <input style="width:400px;" type="text"/>					

AIR RESOURCES BOARD
Air Pollution Control Program Support
Section 105 FY2019-20
BUDGET DETAIL

a. PERSONNEL

POSITION	NO.	SALARY RANGE/MO	AMOUNT
Air Resources Supervisor II	8.0	\$9,870-12,356	\$ 1,066,848.00
Air Resources Supervisor I	22.0	\$8,986-11,247	\$ 2,670,756.00
Staff Air Pollution Specialist	11.0	\$8,267-10,349	\$ 1,228,656.00
Air Resources Engineer	34.0	\$5,098-9,548	\$ 2,987,784.00
Air Pollution Specialist	84.0	\$4,651-9,000	\$ 6,880,104.00
Instrument Technician, Air Quality	12.0	\$3,546-5,585	\$ 657,432.00
Air Resources Technician II	1.0	\$2,986-3,740	\$ 40,356.00
Office Technician	2.0	\$2,868-3593	\$ 77,532.00
a. Personnel Total	174.0		\$ 15,609,468.00

b. FRINGE BENEFITS

BASE (Personnel)	\$ 15,609,468.00
RATE	53.18%
b. Fringe Benefits Total	\$8,301,115.08

c. TRAVEL

c. Travel Total	\$0.00

d. EQUIPMENT

d. Equipment Total	\$0.00

e. SUPPLIES

	ITEM	AMOUNT
PAMS	Ionizing Units (Multiple)	\$ 4,218.00
e. Supplies Total		\$4,218.00

f. CONTRACTUAL

f. Contractual Total	\$0.00

g. CONTRUCTION(N/A)**h. OTHER**

PM2.5 Phase II	\$400,000.00
New Camera	\$20,000.00
Salton Sea	\$10,000.00
Real-Time speciation	\$150,000.00
Imperial County Real-Time Website	\$100,000.00
Nonroad Renewable Diesel Engine Testing	\$150,000.00
Investigate the Impacts of Residential Wood Burning on Wintertime PM2.5 Pollution in the San Joaquin Valley of California	\$175,000.00
h. Other Total	\$905,000.00

i. TOTAL DIRECT COSTS	24,819,801.08
------------------------------	----------------------

j. INDIRECT COSTS

ICRP Base \$5,749,195.00 x Rate 40.81%	\$2,354,111.92
SWCAP	\$407,949.00
j. Indirect Costs Total	\$2,762,060.92

k. TOTAL PROPOSED COSTS	\$27,581,862.00
FEDERAL FUNDS REQUESTED	\$7,066,362.00
RECEPIENT SHARE (MATCH)	\$20,515,500.00
FEDERAL SHARE OF TOTAL PROPOSED COSTS	25.42%
RECEPIENT SHARE OF TOTAL PROPOSED COSTS	74.58%

Essential Element 3
Workplan Output Matrix
October 1, 2018 - September 30, 2019

ATTACHMENT A

The following Workplan Commitments meet the Strategic Plan Goal "Taking Action on Climate Change and Improving Air Quality" and also meet the Strategic Plan Objectives 1.1 "Address Climate Change" and 1.2 "Improve Air Quality"			
Objective	Workplan Commitments	Contact	Due Date
1.2 Improve Air Quality	Continued submittal of NAAQS pollutant data, PAMS, and other QA data to AQS (Air Quality System) directly or indirectly through another organization according to CFR part 58 (OAQPS M11).	Ravi Ramalingam 916-322-2085	Ongoing
1.2 Improve Air Quality	Prepare and submit Annual Network Plan for 25 districts included in the CARB PQAO (Primary Quality Assurance Organization).	Ravi Ramalingam 916-322-2085	2019
1.2 Improve Air Quality	Compile summary of information from all District network plans and submit to Region 9.	Ravi Ramalingam 916-322-2085	2019
1.2 Improve Air Quality	Infrastructure SIP - 2015 Ozone Standard.	Ravi Ramalingam 916-322-2085	2019
1.2 Improve Air Quality	Hosting and Administration of CAMNAT database (California Air Monitoring Network Assessment database).	Ravi Ramalingam 916-322-2085	Ongoing
1.2 Improve Air Quality	Certify ambient data for which ARB has AQS (Air Quality System) submittal Authority.	Ravi Ramalingam 916-322-2085	2019
1.2 Improve Air Quality	Conduct adequate, independent QA audits of state/local NAAQS monitors or participates in NPAP (National Performance Audit Program) and PEP QA programs (OAQPS M13).	Ranjit Bhullar 916-322-0223	Semi-annually
1.2 Improve Air Quality	Consult with U.S. EPA to develop approvable SIPs to attain the 35 microgram/m ³ PM2.5 NAAQS, including inventories and control strategy development, air quality modeling, and adoption of enforceable measures (OAQPS N08).	Sylvia Vanderspek 916-324-7163	Ongoing
1.2 Improve Air Quality	Consult with U.S. EPA to develop approvable SIPs to attain the 0.075 ppm Ozone NAAQS, including inventories and control strategy development, air quality modeling, and adoption of enforceable measures (OAQPS N08).	Sylvia Vanderspek 916-324-7163	Ongoing
1.2 Improve Air Quality	Consult with U.S. EPA to develop approvable SIPs to attain the 12 microgram/m ³ PM2.5 NAAQS, including inventories and control strategy development, air quality modeling, and adoption of enforceable measures (OAQPS N08).	Sylvia Vanderspek 916-324-7163	Ongoing
1.2 Improve Air Quality	Submit revisions to attainment demonstration SIPs to attain the PM10 standard.	Sylvia Vanderspek 916-324-7163	2019/2020
1.2 Improve Air Quality	Submit Clean Air Act Section 110(a)(1) maintenance SIPs required for PM2.5 attainment areas (OAQPS N19).	Sylvia Vanderspek 916-324-7163	2019/2020
1.2 Improve Air Quality	Submit the 2017 Statewide emission inventories for criteria pollutants required by the AERR (Air Emissions Reporting Requirements), via CDX, covering all major sources (OAQPS N20).	Stephanie Detwiler 916-323-2664	2019
1.2 Improve Air Quality	Submit all RBLC ("Reasonably Available Control Technology" "Best Available Control Technology" "Lowest Achievable Emission Rate" "Clearinghouse") data, including timeliness data on New Source Review (NSR) permits issued for new major sources and major modifications by entering data into the RBLC national database (OAQPS P17).	Duc Tran 916-322-5558	Semi-annually
1.2 Improve Air Quality	Submit Mexico Border PM10 mass analysis.	Michael Werst 916-322-6202	2020
1.2 Improve Air Quality	Submit streamline permitting and enforcement reports, reports on Title V, authorities to construct, permits and permit program, emission reduction credits; MACT (Maximum Achievable Control Technology) determinations, synthetic minor operating permits.	Tung Le 916-445-1818	Quarterly
1.2 Improve Air Quality	Mexicali PM2.5 Monitoring Study, Phase II	Elizabeth Melgoza (916) 322-6161	2020

Essential Element 3
Workplan Output Matrix
October 1, 2018 - September 30, 2019

ATTACHMENT A

1.2 Improve Air Quality	Purchase a new camera to identify desert lands and dust plumes contributing to windblown dust.	Earl Withycombe 916-322-8487	2019
1.2 Improve Air Quality	Support collaboration among regulatory agencies on Salton Sea.	Earl Withycombe 916-322-8487	2020
1.2 Improve Air Quality	Addition of real-time speciation capabilities to the Calxico monitoring site.	Webster Tasat (916) 323-4950	2020
	Submit non-grantee district enforcement reports.	Steve Brisby 916-229-0899	
1.2 Improve Air Quality	Monthly Active High Priority Violations reports.	Steve Brisby 916-229-0899	Monthly
1.2 Improve Air Quality	Bi-monthly Full Compliance Evaluation reports.	Steve Brisby 916-229-0899	Bi-monthly
1.2 Improve Air Quality	Quarterly Continuous Emissions Monitoring Systems Summary reports.	Steve Brisby 916-229-0899	Quarterly
1.2 Improve Air Quality	Variance orders > 90 days.	Steve Brisby 916-229-0899	> 90 Days
1.2 Improve Air Quality	Submit compliance training progress reports.	Leisa Bush 916-229-0763	Semi-annually
1.2 Improve Air Quality	Submit district rules to the SIP.	Carol Sutkis 916-322-1229	Quarterly (or as required)
1.2 Improve Air Quality	Gain US EPA approval of SIP Submittals for 2008 Ozone Standard.	Carol Sutkis 916-322-1229	2019/2020
1.2 Improve Air Quality	Imperial & San Diego County Air Basins Real-Time Website.	Elizabeth Melgoza (916) 322-6161	2020
1.2 Improve Air Quality	Salton Sea Soil Emissivity Testing (pending contract extension approval for completion).	Earl Withycombe 916-322-8487	2019
1.2 Improve Air Quality	Ozone Monitoring Support.	Fernando Amador 626-575-6635	2019
	Submit control measures implementing commitments from approved SIPs.		As Adopted
1.2 Improve Air Quality	California SIP Revisions for PM and Ozone standards.	Webster Tasat 916-323-4950	2019
1.2 Improve Air Quality	Off-Road Agricultural Equipment.	Lucina Negrete 916-445-6138	2019
1.2 Improve Air Quality	Zero Emission Shuttle Buses.	Scott Rowland 626-350-6518	2019
1.2 Improve Air Quality	Proposed Regulation on Zero Emission Airport Ground Support Equipment.	Scott Rowland 626-350-6519	2019
1.2 Improve Air Quality	Proposed Regulation on Last Mile Delivery.	Craig Duehring 916-323-2361	2019
1.2 Improve Air Quality	Support joint efforts with the University of California Riverside, College of Engineering – Center for Environmental Research and Technology (CE-CERT) to test emissions of renewable diesel in a nonroad agricultural engine in support of CARB's SIP commitment to develop a Low-Emission Diesel measure.	Gavin Hoch 916-324-0839	2020
1.2 Improve Air Quality	Investigating the impacts of residential wood burning on wintertime PM2.5 pollution in the San Joaquin Valley of California	James Chen 916-327-2929	2019

ENVIRONMENTAL PROTECTION AGENCY (EPA Region 9)

California Air Resource Board

Project Title: Investigate the Impacts of Residential Wood Burning on Wintertime PM2.5 Pollution in the San Joaquin Valley of California

CARB Technical Contact:

James Chen Tel: 916-327-2929
E-mail: james.chen@arb.ca.gov

**Administrative
Contacts:**

Prashika Maharaj Tel: 916-322-1282
E-mail: prashika.maharaj@arb.ca.gov
Phuong Duong Tel: 916-440-8201
E-mail: phuong.duong@arb.ca.gov

Funding Awarded: \$75,000

Completion Date: April 2020 (estimate, can correspond to the end of budget year)

Project Description:

The San Joaquin Valley (SJV) of California often exceeds the National Ambient Air Quality Standards for PM2.5 (fine particulate matter with diameter less than or equal to 2.5 micrometer) during wintertime due to enhanced anthropogenic emissions and stagnant meteorological conditions. Since residential wood burning (RWB) is a major contributor to PM2.5 in the SJV during winter, mandatory episodic restrictions have been placed on RWB to improve air quality and to decrease the number of non-attainment days. The proposed research aims to characterize the sources of PM2.5 during winter months in the SJV and evaluate the impacts of the mandatory RWB curtailment program on particulate matter concentration and composition. Specifically, we propose to perform highly time-resolved, in-situ measurements of size-resolved compositions of inorganic and organic components in sub-micrometer particles (PM1) using a high resolution time-of-flight aerosol mass spectrometer (HR-AMS) and offline measurements of PM2.5 concentration and speciation in Fresno, one of the most populated cities in SJV. Detailed analyses of the HR-AMS data will be performed to determine the contributions from wood burning, other primary sources (such as traffic and cooking), and secondary formation processes to wintertime PM pollutants in the SJV. The highly time-resolved PM composition and source apportionment results will be integrated with measurements of gaseous pollutants (e.g., CO, NOx, and O3) and meteorological conditions to determine how RWB restriction influences PM2.5 levels. An existing California Air Resources Board research project funds this work to perform one month of such measurement. The funding from EPA will allow for an additional one month of measurements. The expanded measurements will provide greater coverage of the winter months, when RWB restrictions are in place, and allow for a more robust statistical analysis of the sources of PM2.5 and its contribution from RWB. The results will strengthen the scientific understanding of the nature of SJV's particulate matter problem, the relative contribution of pollution sources and the effectiveness of the RWB curtailment program on reducing ambient PM2.5 levels.

Budget for Project Period

Principal Investigator (Last, First):

Zhang, Qi

COMPOSITE BUDGET FOR ENTIRE PROPOSED PROJECT PERIOD

10/01/18

to

09/30/19

From: To:	10/01/2018 09/30/2019 Year 1			
BUDGET CATEGORY				
PERSONNEL: <i>Salary and fringe benefits.</i>	\$38,544			
TRAVEL	\$8,201			
MATERIALS & SUPPLIES	\$13,255			
EQUIPMENT	\$0			
CONSULTANT	\$0			
SUBRECIPIENT	\$0			
OTHER DIRECT COSTS (ODC)	<i>Subject to IDC Calc</i>			
ODC #1	Y	\$0		
ODC #2	Y	\$0		
ODC #3	Y	\$0		
ODC #4	Y	\$0		
ODC #5	Y	\$0		
ODC #6	Y	\$0		
TOTAL DIRECT COSTS		\$60,000		
Indirect (F&A) Costs	<i>Rate: 25%</i>	<i>F&A Base MTDC *</i>		
		\$60,000		
		\$15,000		
TOTAL COSTS PER YEAR		\$75,000		
TOTAL COSTS FOR PROJECT				

* MTDC = Modified Total Direct Cost

JUSTIFICATION. See Exhibit B1 - Follow the budget justification instructions.

Budget Justification

The Budget Justification will include the following items in this format.

Personnel

Name. Starting with the Principal Investigator list the names of all known personnel who will be involved on the project for each year of the proposed project period. Include all collaborating investigators, individuals in training, technical and support staff or include as "to be determined" (TBD).

Role on Project. For all personnel by name, position, function, and a percentage level of effort (as appropriate), including "to-be-determined" positions.

Individual name	Title	Monthly salary	Est. months	% of effort	Total salary requested
Dr. Qi Zhang	Professor	\$11,817	0.5	4.167%	\$5,909
TBN	Postdoc	\$4,468	6	50%	\$26,808

SALARIES: \$32,796

Dr. Qi Zhang (Principal Investigator / Professor): \$5,909

Funding support in the amount of \$5,909 is requested to cover salary for Dr. Qi Zhang who will contribute 0.5 summer months of effort (4.167% effort based on Annual FTE) to the project in year 1 (monthly rate is \$11,817). Dr. Zhang will be responsible for overseeing all related work for this project.

To Be Named (Postdoctoral Scholar, Level 2): \$26,808

\$26,808 in funding support is requested for the employment of a To Be Named Level 2, Postdoctoral Scholar. The Postdoctoral Scholar will be employed for 12 months at 50.0% time per month for the duration of the project (monthly rate is \$4,468). They will be responsible for conducting the field experiments and performing associated data analysis.

Fringe Benefits.

In accordance with University policy, explain the costs included in the budgeted fringe benefit percentages used, which could include tuition/fee remission for qualifying personnel to the extent that such costs are provided for by University policy, to estimate the fringe benefit expenses on Exhibit B.

Individual name	Base (\$)	Rate (%)	Cost
Dr. Qi Zhang	\$5,909	17.8%	\$1,052
TBN	\$26,808	17.8%	\$4,772
Total benefits cost	\$5,824		

BENEFITS: \$5,748

Benefit costs are based on composite benefit rates. Dr. Zhang will be subject to the estimated rate of 17.8%. The rates for the Postdoctoral Scholar are based on the estimated rates of 17.8%.

Travel

Itemize all travel requests separately by trip and justify in Exhibit B1, in accordance with University travel guidelines. Provide the purpose, destination, travelers (name or position/role), and duration of each trip. Include detail on airfare, lodging and mileage expenses, if applicable. Should the application include a request for travel outside of the state of California, justify the need for those out-of-state trips separately and completely.

TRAVEL: \$8,201

Domestic Travel: \$8,201

Funding supporting the amount of \$8,201 is requested to support travel that will be incurred during the 1st year of this project. A breakdown of the cost is shown on the following table: 1 staff will need to stay at Fresno to make measurements during the one month field campaign, 1 support staff will need to travel to Fresno to assist with calibration, trouble shooting of the instruments during the field campaign, .

TRAVEL	International?	Period 1
Field Campaign (31Days) - 1 Traveler	No	
Lodging @ \$120/night x 31 nights	No	3,720
Meal & incidental Expenses @ \$50 per day x 31 days	No	1,550
Personal Car Mileage: Davis <-> Fresno: 400 Miles Round Trip x 2 Trips @ \$0.545 per mile	No	436
Daily Personal Car mileage @ 30 miles per day @ \$0.545 per mile x 31 days	No	507
	No	
Support Staff Travel to assist with experiment (7 Days) - 1 Traveler	No	
Lodging x 1 Rooms @ \$120/night/rm x 6 nights	No	720
Meal & incidental Expenses @ \$50 per day x 7 days x 1 traveler	No	1,050
Personal Car Mileage: Davis <-> Fresno: 400 Miles Round Trip @ \$0.545 per mile	No	218
	No	
	No	
	No	
Total Domestic Travel		8,201
Total International Travel		0
Total Travel		8,201

Materials and Supplies

Itemize materials supplies in separate categories. Include a complete justification of the project's need for these items. Theft sensitive equipment (under \$5,000) must be justified and tracked separately in accordance with State Contracting Manual Section 7.29.

MATERIALS AND SUPPLIES: \$13,255

Funds totaling \$13,255 are requested to support material and supply costs associated with the operation of a soot-particle high-resolution time-of-flight aerosol mass spectrometer, a high volume PM2.5 sampler, and an IMPROVE PM2.5 sampler during the field study at Fresno and the analysis of filter samples in Zhang's Laboratory at 4422 Meyer Hall. An additional \$300 is requested for the purpose of hard drives for storing the project data. A breakdown of the cost is shown on the following table:

OTHER DIRECT COSTS	
Materials and Supplies	Period 1
AMS Turbon pump refurbish	3,600
Swagelok tubing and fittings	1,000
AMS, SMPS, TD consumables (filament, critical orifice, filters, Po strips...)	1,200
AMS MCP replacement	3,600
Filter samples collection and processing	2,200
Chemicals, standards, glassware, and other supplies for chemical analysis	855
Ion chromatograph columns, chemicals, and supplies	500
Hard Drives for Data Storage	300
Total Materials and Supplies	13,255

Equipment

List each item of equipment (greater than or equal to \$5,000 with a useful life of more than one year) with amount requested separately and justify each.

Not Applicable

Consultant Costs

Consultants are individuals/organizations who provide expert advisory or other services for brief or limited periods and do not provide a percentage of effort to the project or program. Consultants are not involved in the scientific or technical direction of the project as a whole.

Provide the names and organizational affiliations of all consultants. Describe the services to be performed, and include the number of days of anticipated consultation, the expected rate of compensation, travel, per diem, and other related costs.

Not Applicable

Subawardee (Consortium/Subrecipient) Costs

Each participating consortium organization must submit a separate detailed budget for every year in the project period in Exhibit B2 Subcontracts. Include a complete justification for the need for any subawardee listed in the application.

Not Applicable

Other Direct Costs

Itemize any other expenses by category and cost. Specifically justify costs that may typically be treated as indirect costs. For example, if insurance, telecommunication, or IT costs are charged as a direct expense, explain reason and methodology.

Not Applicable

Rent

If the Scope of Work will be performed in an off-campus facility rented from a third party for a specific project or projects, then rent may be charged as a direct expense to the award.

Not Applicable

Indirect (F&A) Costs

Indirect costs are calculated in accordance with the budgeted indirect cost rate in Exhibit B.

INDIRECT COSTS: \$15,000

Per the memorandum of understanding between the University of California and the State of California indirect costs have been calculated at 25% Modified Total Direct Cost (MTDC) for the duration of the project.